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The intervening role of Agreeableness in the relationship between Trait Emotional Intelligence and Machiavellianism: Reassessing the potential dark side of EI

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ABSTRACT

Previous research into the potential 'dark' side of trait emotional intelligence (EI) has repeatedly demonstrated that trait EI is negatively associated with Machiavellianism. In this study, we reassess the potential dark side of trait EI, by testing whether Agreeableness mediates and/or moderates the relationship between trait EI and Machiavellianism. Hypothesized mediation and moderation effects were tested using a large sample of 884 workers who completed several self-report questionnaires. Results provide support for both hypotheses; Agreeableness was found to mediate and moderate the relationship between trait EI and Machiavellianism. Overall, results indicate that individuals high in trait EI tend to have low levels of Machiavellianism *because* they generally have a positive nature (i.e. are agreeable) and *not* because they are emotionally competent per se. Results also indicate that individuals high in 'perceived emotional competence' have the potential to be high in Machiavellianism, particularly when they are low in Agreeableness.

1. Introduction

Trait Emotional Intelligence (trait EI) is best defined as a constellation of emotional self-perceptions "located at the lower levels of personality hierarchies" (Petrides, Pita, & Kokkinaki, 2007, p. 287). It is generally considered a positive, adaptive trait and has been found to correlate with several positive outcomes including mental health (Martins, Ramalho, & Morin, 2010; Sinclair & Feigenbaum, 2012), physical health (Martins et al., 2010), cooperative behavior and marital satisfaction (Schutte et al., 2001). However despite the generally positive nature of trait EI, some have suggested a potential negative or 'dark' side to this trait (e.g., Austin, Farrelly, Black, & Moore, 2007; Carr, 2000). Indeed it follows that those with self-perceived capabilities to recognize and influence the emotions of others (i.e. those high in trait EI) might have a *disposition to use such capabilities for self-gain* (Austin et al., 2007). From this perspective, it is plausible that trait EI might predict 'Machiavellianism' (Mach), which is a personality trait characterized by the tendency to engage in exploitative, self serving and emotionally manipulative behavior (Christie & Geis, 1970).

However research has repeatedly demonstrated that trait EI is negatively correlated with Mach (e.g., Austin et al., 2007; Barlow, Qualter, & Stylianou, 2010). Such research indicates that trait EI negatively predicts Mach in children (Barlow et al., 2010) as well as in adults (Austin et al., 2007). Interestingly, Austin et al. (2007) replicated this finding with ability EI, and found that for both trait and ability measures of EI, subscales relating to 'managing others' emotions' were the strongest negative predictors of Mach. Furthermore, research focussing on Mach and 'empathy' (a component of trait EI) has also revealed similar negative associations between these constructs (e.g., Jonason, Lyons, Bethell, & Ross, 2013). Clearly therefore, a negative 'total' relationship exists between trait EI and Mach, such that individuals high in trait EI tend to be low in Mach.

We argue however that such a relationship is not sufficient to dismiss the potential dark side of trait EI, and that two key questions remain unanswered regarding the relationship between trait EI and Mach. First, as noted above, those high in trait EI seemingly have the potential to use their emotional capabilities in exploitative, self serving and manipulative (i.e. Machiavellian) ways. Our first key question then, is *why* do such individuals tend to forego this potential and actually score low on measures of Mach? Second, it is possible that the overall negative relationship between trait EI and Mach does not hold true for individuals with a disposition towards selfish, competitive and uncooperative behavior to begin

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with. Specifically, it seems likely that such individuals might be particularly likely to engage in emotionally manipulative, exploitative behaviors, when they are *also high in trait EI*. Our second key question then, is *under what conditions* might there be a positive relationship between trait EI and Mach? Overall therefore, we seek to better understand the potential dark side of trait EI by first examining *why* high trait EI tends to result in low rather than high Mach, and second, by testing *when* high trait EI might actually result in darker (i.e. Machiavellian) behavior.

1.1. The multidimensional nature of Trait EI and Mach

Trait EI is generally considered to be a broad, multidimensional construct. It is comprised of several sub-dimensions related to *perceived emotional competence* (e.g. perceived emotional regulation, perceived interpersonal skills) and *positive emotional functioning* (e.g. stress management, optimism, happiness). A further core feature of trait EI, is its inherent positive, pro social nature, which stems from the inherently pro-social nature of most trait EI sub dimensions (particularly those related to interpersonal skills; see for example Bar-On, 2002). Therefore, 'total' scores on trait EI measures tend to reflect a range of self-reported emotional competencies and positive emotional dispositions that are generally accompanied by the pro social desire to bring about positive outcomes for others.

Given this multidimensional nature of trait EI, it is possible that the negative relationship between trait EI and Mach is primarily due to the pro-social and positive component of trait EI. In other words, it is possible that those high in trait EI are generally low in Mach, because people high in psychometrically measured trait EI are essentially 'nice, friendly and good' people. We believe this particularly holds true for the trait EI sub dimension 'Managing Others' Emotions' (MOE) as this is arguably the most pro-social of all trait EI sub dimensions. It is also the sub dimension that has the strongest negative association with Mach (Austin et al., 2007). Importantly, therefore, we suggest that the negative association between trait EI and Mach has little to do with *perceived emotional competence* (*or perceived* '*emotional cleverness*'). On the contrary, we suggest that this component of trait EI might actually be positively associated with Mach under certain conditions.

Consistent with this possibility, some research indicates that high Machs are actually *more emotionally competent* (based on non-EI self-report and objective measures) than their non-Mach counterparts. For example, Austin et al. (2007) found that Machs out-score non-Machs in their perceived ability to manipulate the emotions of others (example item "I can use my emotional skills to make others feel guilty"). Similarly, Bagozzi et al. (in press) found that individuals with high levels of Mach demonstrated enhanced empathic processing of faces (based on higher activation of the insula and pars opercularis brain regions) than individuals with low levels of Mach. Therefore it is possible that when elements of trait EI specifically relating to emotional competence are isolated, trait EI might (under certain conditions) positively predict darker dispositions, such as Mach.

1.2. Current research

In this study we focus on the relationship between total trait EI and Mach, as well as the relationship between the trait EI subscale Managing Others' Emotions (MOE) and Mach. MOE can broadly be defined as a perceived set of abilities related to perceiving and managing emotions in others, generally with the view towards improving the emotions of others. We focus specifically on this subscale, as previous research has found strong negative relationships between MOE and Mach (using both trait and ability measures; Austin et al., 2007). Total trait EI and MOE were measured using Schutte et al.'s (1998) questionnaire. This widely used measure of trait EI was appealing for this research since it has a specific subscale that has been termed 'Managing Others' Emotions' (see Ciarrochi, Chan, & Bajgar, 2001) and clearly measures the various dimensions of trait EI as discussed above (i.e. perceived emotional competence, positive emotional functioning, general pro-social nature). Based on the research discussed above, and the generally pro-social, altruistic element to trait EI, we hypothesize that trait EI and MOE will be negatively correlated with Mach (H1).

Second and more importantly, we wanted to investigate the potential mediating and moderating roles of the Big Five trait 'Agreeableness' in the relationship between trait EI and Mach. Agreeableness is a broad personality trait, characterized by cooperativeness, soft-heartedness, tolerance and altruism (Barrick & Mount, 2006; Goldberg, 1999). In the mediation analysis, we test the idea that the relationship between trait EI and Mach can be explained by Agreeableness. In other words, we test the possibility that those high in trait EI are unlikely to engage in Mach behaviors *because* they are high in Agreeableness (i.e. because they are nice, friendly, good people) and not because they perceive themselves capable of competently managing/using emotions per se. We hypothesize that this is the case, and therefore hypothesize that Agreeableness will mediate the relationship between trait EI and Mach (H2).

In the moderation analysis, we test the possibility that the relationship between 'Perceived Emotional Competence' (a component of trait EI) and Mach *depends* on Agreeableness. We argue that the perceived ability to manage and influence emotions is likely to manifest as emotional manipulation and Machiavellianism in individuals who are not 'nice, friendly, good' people to begin with (i.e. low in Agreeableness). Specifically therefore, we hypothesize a significant interaction between trait EI and Agreeableness in the prediction of Mach, such that the relationship between trait EI and Mach will be positive at low levels of Agreeableness (H3).

2. Methods

2.1. Participants

Our sample comprised 884 workers from a variety of occupations and industries. Most participants in this sample (77.7%) were aged between 26 and 45 years, 16.0% were 46 and older, and 6.3% were under 25 years. Approximately two-thirds of participants were female and one-third were male. Participants came from a wide range of industries: accommodation and food services (3.5%), agriculture, forestry and fishing (3.6%), construction (5.5%), education and training (7.2%), financial services (5.2%), health and social assistance (8.6%), manufacturing (6%), professional, scientific and technical services (6.9%), public administration and safety (4.0%), retail trade (8.8%), transport, Postal and Warehousing (3.2%), and wholesale trade (2%). About half of the participants held executive positions (51.2%). Participants were either managers, (27.3%), senior managers (5.1%), directors, (9.5%), CEOs, (1.9%), presidents, (1.1%), or held other high level administrative positions (34.1%).

We recruited this sample using an Australian-based participant recruitment and data collection company (Empowered Communications). This company has access to a network of over 500 000 Australians who have consented (in advance) to receiving information about various research projects and surveys they can be involved in. Importantly, this company can generate random samples (from their database) of prospective participants from specified populations. Our questionnaire was sent out (via email) to a group of 3000 workers who met our requirements (i.e. full-time employees from a variety of industries in mid to high level

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positions) and remained live for three days. The response rate was therefore quite high (29.5%) particularly considering the survey was live for a short time and no reminders were sent to prospective participants. Participants were not paid for participation, however were offered minor incentives from the recruitment company (e.g. raffle tickets, random prizes etc.).

2.2. Measures

2.2.1. Self-Report Emotional Intelligence Test (SREIT) (Schutte et al., 1998)

This 33-item, self-report measure of trait EI is based on Salovey and Mayer (1990) model of emotional intelligence. It incorporates a 6-point Likert-type scale ranging from 1 (strongly-disagree) to 6 (strongly-agree). The SREIT has provided internally reliable scores in the past (0.90 for total score and between 0.63 and 0.86 for the four subscales) and adequate test–retest reliabilities (Brackett & Mayer, 2003). Previous research using this measure has also reported validity of test scores, in terms of relationships with theoretically related constructs including clarity of feelings, mood repair, optimism and impulse control (Schutte et al., 2001).

2.2.2. IPIP Big-Five markers (Goldberg, 1999)

This 50-item, self-report scale was designed to measure the broad, Big-Five factors of personality. It incorporates a 5-point Likert-type scale, ranging from 1 (very accurate) to 5 (very inaccurate). This questionnaire has been found to produce scores with high levels of convergent validity and internal reliability (Goldberg et al., 2006).

2.2.3. Machiavellian IV Scale (MACH-IV) (Christie & Geis, 1970)

The MACH-IV Scale comprises 20 items that collectively measure "Machiavellianism". In incorporates a 5-point likert-type rating scale, ranging from 1 (strongly-disagree) to 5 (strongly-agree). Items measure the extent to which individuals engage interpersonal 'tactics' (similar to manipulation), have a cynical view of human nature and a disregard for conventional morality. The Mach IV is a widely used measure of Machiavellianism and has generally been found to produce scores with good reliability (e.g. 0.74; Austin et al., 2007) and concurrent validity (Rauthmann, in press).

2.4. Procedure

The scales containing the questionnaires detailed above were administered to the 884 workers online via an email invitation. The email contained a brief summary of the project, followed by an active link to the survey webpage (controlled by the research team). Once participants consented to their involvement in the research (by clicking the 'consent' button) they were taken to the survey page, where they could complete the survey at their own pace. Pilot tests revealed that this online questionnaire took an average of 15 min to complete (however some pilot participants needed up to twenty minutes to complete the set of 103 questions). Participants were not required to answer all items, however they received a 'prompt' each time they bypassed an item without giving a response. This was used in an attempt to minimize accidental occurrences of missing data.

3. Results

Prior to conducting our primary analyses we generated a series of histograms, scatter plots and descriptive statistics to inspect the normality, linearity and homoscedasticity regression assumptions. We found the distribution of MOE scores to be marginally skewed (Skewness coefficient = −0.42, SE = 0.08), however inspection of the relevant histogram revealed the slight deviation from normality to be acceptable. All assumptions were deemed to be satisfied. Missing value analysis revealed the missing values present in nine of the 884 cases (1%) to be missing randomly. As such, these values were subsequently imputed using the expectation maximization (EM) technique in SPSS. Further, we repeated all analyses on the original data set containing missing values, and did not find any substantive differences between the two sets of results. All results reported below, therefore, are from the complete data set of 884 workers, with missing data imputed on nine cases.

Means, standard deviations, alphas and correlations among Agreeableness, Managing Others' Emotions and Machiavellianism are summarized in Table 1. These values are largely consistent with what has been reported in the broader literature, as well as in other samples we have collected (e.g. university students).

Consistent with Hypothesis 1 we found that both overall trait EI and MOE were negatively and moderately correlated with Mach (see Table 1). This indicated that those high in trait EI (and specifically MOE) tended to be low in Mach. In order to test hypothesis 2, that Agreeableness would mediate the relationship between trait EI and Mach, we used the 'indirect' method developed by Preacher and Hayes (2008). This method tests for indirect effects by calculating percentile based, bias-corrected confidence intervals for indirect (mediated) effects. Gender was controlled in this analysis (by partialing its effects out of Agreeableness and Mach) as trait EI and Mach have been found to co-vary with gender previously. We conducted this analysis twice; once with MOE as the IV and a second time with overall trait EI as the IV.

The results of these analyses are summarized in Fig. 1. As can be seen in Fig. 1, results supported the second hypothesis. The direct effect between MOE and Mach (beta = −0.46, $p < 0.001$) was reduced upon the inclusion of the mediator, Agreeableness (beta = −0.17, $p < 0.05$), indirect effect = −0.29, $p < 0.05$ (based on the bias corrected 95% confidence interval not spanning zero: low-

Table 1
Descriptive statistics and correlations among, trait EI, Agreeableness and Machiavellianism.

	Alpha	M	SD	1	2	3
1. Trait Emotional Intelligence	0.93	121.55	16.49			
2. Managing others' emotions	0.75	29.81	4.38			
3. Agreeableness	0.79	38.98	5.79	0.64***	0.66***	
4. Machiavellianism	0.68	53.82	7.98	−0.32***	−0.34***	−0.45***

*** $p < 0.001$.

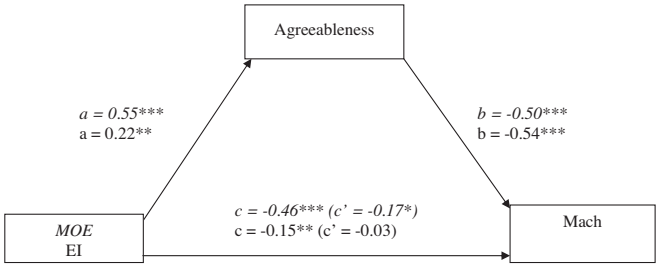

Fig. 1. Hypothesized pathways between trait EI, Agreeableness and Mach. In this figure, a and b are direct paths, c is the total effect from trait EI to Mach and c′ is the direct path from Agreeableness to Mach controlling for trait EI. The indirect effect is the difference between the total effect (c) and the direct effect (c′) which is tested for significance using bootstrapping. Results of the same analysis for the subscale 'MOE' are in italics. Gender is controlled in both analyses. *$p < 0.05$, **$p < 0.01$, ***$p < 0.001$.

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er = −0.33, upper = −0.21). A similar pattern of coefficients was found when overall trait EI was used as the IV (see Fig. 1) except the indirect effect was slightly weaker (indirect effect = −0.12, $p < 0.05$). This pattern of results represents a partial mediation when MOE is used as the IV (medium effect size) and a full mediation when trait EI is used as the IV (small effect size).

Prior to testing the third hypothesis, we ran an EFA on all items from Schutte et al.'s (1998) scale, and specified a 2 factor solution to determine whether items would actually load on factors defined by 'Perceived Emotional Competence' and 'Positive Emotional Functioning' as suggested above. The two factor solution that emerged was consistent with the idea that trait EI is comprised of (at least) these two components. Items reflecting what we term 'Perceived Emotional Competence' included: "I find it hard to understand the non-verbal messages of other people" (reverse scored), "I am aware of the non-verbal messages I send to others", "By looking at their facial expressions, I recognize the emotions people are experiencing", "I am aware of the non-verbal messages other people send", "I know what other people are feeling just by looking at them", "I know why emotions change", "I can tell how people are feeling by listening to their tone of voice" and "I easily recognize my emotions as I experience them". All remaining items loaded on the other factor. It is clear from reading this list, that no items in this 'Perceived Emotional Competence' factor refer to optimism, positivity or the inclination to help others. Interestingly, this factor solution was consistent with the EFA conducted by Petrides and Furnham (2000), in that the exact items loading on the factor we term 'Perceived Emotional Competence' are the ones that comprised Petrides and Furnham's second factor, which they titled 'Appraisal of Emotions'. Indeed, when we specified a four factor solution, we obtained a very similar solution to that found by Petrides and Furnham (2000), but importantly, our 'Perceived Emotional Competence' factor remained exactly the same.

In order to test the moderation hypothesis (Hypothesis 3), we ran a hierarchical multiple regression analysis, entering gender at step one (as a control), the mean centered IV (Perceived Emotional Competence) and moderator (Agreeableness) at step 2 and the interaction term at step 3. The result of this analysis is summarized in Table 2.

The interaction between Agreeableness and Perceived Emotional Competence was significant, indicating that Agreeableness did indeed act as a moderator in the relationship between Perceived Emotional Competence and Mach. A simple slopes analysis was then conducted in order to determine the nature of the relationship between trait EI and Mach at high and low levels of Agreeableness. The results of this analysis are illustrated in Fig. 2. We found a significant positive relationship between Perceived Emotional Competence and Mach at low (−1 SD) levels of Agreeableness (beta = 0.14, $p < 0.05$) and a non-significant relationship between Perceived Emotional Competence and Mach at high (+1 SD) levels of Agreeableness (beta = −0.09, $p = 0.16$). It should be noted however, that while significant, the relationship between Perceived Emotional Competence and Mach at low levels of Agreeableness represents only a small effect size.

Table 2
Regression coefficients (beta weights) and squared multiple correlation coefficients for the proposed moderated relationship between Perceived Emotional Competence, Agreeableness and Mach.

Predictors	DV (Mach)
Step 1 – covariate	
Gender	0.18***
Adj R^2	0.03***
Step 2 – main effects	
Perceived EC	0.01
Agreeableness	−0.44***
R^2 Ch.	0.17***
Step 3 – interaction term	
Perceived EC × agreeableness	0.015**
R^2 Ch.	0.007**

** $p < 0.01$.
*** $p < 0.001$.

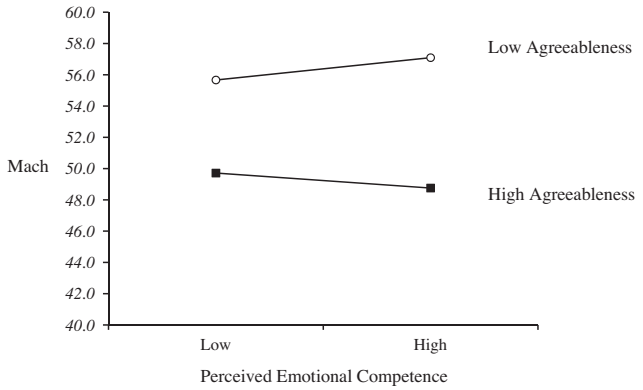

Fig. 2. The relationship between 'Perceived Emotional Competence' and Mach at high and low levels of Agreeableness.

4. Discussion

The primary purpose of this study was to further explore the potential dark side of trait EI by investigating the potential mediating and moderating roles of Agreeableness in the relationship between trait EI and Mach. As noted above, previous research has repeatedly demonstrated a negative relationship between trait EI and Mach (Austin et al., 2007; Barlow et al., 2010) despite the potential for self-perceived emotional competencies to be used for emotionally manipulative and self-focused (i.e. Machiavellian) purposes. We therefore argued that the relationship between trait EI and Mach is more complex than a simple direct effect, and that Agreeableness plays a key role in mediating and moderating this relationship.

Consistent with the first hypothesis and previous research, we found negative bivariate relationships between trait EI and Mach, and MOE and Mach. Clearly therefore, it seems that trait EI and Mach are negatively correlated; those who score highly in trait EI/MOE tend to score low in Mach. Consistent with the second hypothesis, we found that Agreeableness mediates the relationship between trait EI and Mach. We believe this sheds light on the *reason why* high trait EI individuals tend to be low in Mach; high trait EI individuals are generally 'nice, friendly and good people' (i.e. high in Agreeableness) and are therefore quite different from those high in Mach (who tend to be much more self-involved). Indeed when the effects of Agreeableness are controlled (as what happens in mediation) the negative relationship between trait EI and Mach becomes very weak or non-significant.

In the moderation analysis, we directly tested the idea that trait EI has a *potential* dark side and specifically that trait EI might serve to increase Machiavellian behaviors in individuals who are generally selfish, competitive and uncooperative to begin with (i.e. individuals who are low in Agreeableness). In this analysis, we measured trait EI using a subscale we termed 'Perceived Emotional Competence' as items in this subscale reflected the perceived ability to understand and use emotions, rather than other components of trait EI such as optimism, positivity or the inclination to help others. Importantly, we found a significant interaction between Perceived Emotional Competence and Agreeableness, indicating

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that the relationship between this element of trait EI and Mach depends on Agreeableness. The simple slopes analysis confirmed that this was the case; when Agreeableness was low, there was a modest, yet significant positive relationship between Perceived Emotional Competence and Mach. There was no significant relationship between these variables at high levels of Agreeableness.

We suggest that two important implications emerge from this overall pattern of results. First, we suggest that the element of trait EI we refer to as 'Perceived Emotional Competence' has little overall relationship with Mach, and that the well established negative relationship between trait EI (and more specifically interpersonal EI/MOE) and Mach, is primarily due to the generally agreeable nature of those high in trait EI. Second, we suggest that emotional competence by itself, is not inherently 'good' or 'bad', but like other competencies, can be *used as a tool* for good or bad, depending on an individual's underlying disposition. We argue that since individuals high in trait EI are generally high in Agreeableness, such individuals will tend use their emotional competence in positive ways. However individuals who are low in Agreeableness to begin with, will be more likely to use their high levels of emotional competence in more self-focused and Machiavellian ways. Overall therefore, trait EI does not have a dark side, but has the potential to make 'dark' individuals more calculating and emotionally manipulative then they ordinarily would be.

4.1. Limitations

This study was self report and cross sectional, and consequently we were not able to test any causal hypotheses. As mediation is generally said to occur when the causal relationship between two variables can be explained by a third variable, it is questionable as to whether we actually have evidence of 'mediation' as it is strictly defined. However, regardless of whether our analyses fit the strict definition of 'mediation', we suggest that our test of indirect effects between trait EI/MOE and Mach was nevertheless sufficient to support our second hypothesis. A further limitation relates to the potential for participant demand characteristics to have impacted the results. We suggest however that this is unlikely due to the relatively short survey we used (103 items in total).

A further potential limitation of this study was our use of Schutte et al.'s (1998) questionnaire to measure trait EI. The psychometric properties of this questionnaire have been criticized by some prominent authors in the field, as have the methods underlying the development of this scale (e.g. Petrides & Furnham, 2000). However, despite its limitations, this questionnaire has good predictive validity (e.g. Schutte et al., 2001) and importantly allowed us to measure a key construct in this study: 'Managing Others' Emotions'. This dimension was first identified in a factor analysis conducted by Petrides and Furnham (2000) (but termed 'social skills' by these authors), and replicated by Ciarrochi et al. (2001). Furthermore, this scale allowed us to measure what we termed 'Perceived Emotional Competence' since several of the items in this scale were not phrased in the context of helping others. Indeed the Perceived Emotional Competence factor extracted in our EFA was identical to the second factor extracted by Petrides and Furnham (2000), which they titled 'appraisal of emotions'. Therefore, despite the limitations of Schutte et al.'s scale, we believe the components of EI measured in our study are core components of trait EI.

5. Conclusion

The results presented here extend what is currently known about the relationship between Trait EI and Mach in two important ways. First they help explain why there is a negative relationship between MOE and Mach; those high in MOE tend to be low in Mach because they are generally positive, warm, helpful, altruistic individuals (i.e. individuals high in Agreeableness). Second, they demonstrate that those who perceive themselves to have an intelligent understanding of emotions (i.e. those who have high Perceived Emotional Competence) are slightly more likely to be high in Mach when they are low in Agreeableness. Overall therefore, high trait EI individuals have the potential to be high in Mach, but tend not to be due to their generally positive, warm and helpful nature.

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